

REMARKS

Applicants respectfully request reconsideration and allowance of the present application. By this Amendment, Applicants amend claims 1 and 2 and add new claims 32-37. Claims 1-37 are pending in the application.

Claim Objections

Claims 1 and 2 were objected to because of informalities. The claims have been amended in a manner that obviates this objection. In claim 1, lines 11 and 12 from claim 1 have been deleted to correct an apparent clerical error in the Preliminary Amendment, and so the period at the end of line 10 is appropriate. Claim 2 has been amended as suggested in the Office Action. Accordingly, the objections to claims 1 and 2 should be withdrawn.

Claim Rejections Under 35 U.S.C. § 112 (second paragraph)

Claims 3 and 9-10 stand rejected under 35 U.S.C. § 112 (second paragraph) as allegedly being indefinite. For reasons set forth more fully below, this rejection is traversed.

The rejection of these claims is based on lack of clarity between common subject matter in claim 1, from which claims 3, 9 and 10 depend. The common subject matter has been deleted from claim 1, thus rendering the basis for rejection of the claims moot.

Claim Rejections Under 35 U.S.C. § 102

Claims 1-31 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Number 6,341,145 to Hioe et al ("*Hioe*").

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A cited prior art reference anticipates a claimed invention under 35 U.S.C. §102 only if every element of the claimed invention is identically shown in the single reference, arranged as they are in the claims. MPEP §2131; *In re Bond*, 910 F.2d 831, 832, 15 USPQ 2d 1566, 1567 (Fed. Cir. 1990). Anticipation is only shown where each and every limitation of the claimed invention is found in a single cited prior art reference. MPEP §2131; *In re Donohue*, 766 F.2d 531, 534, 226 USPQ 619, 621 (Fed. Cir. 1985).

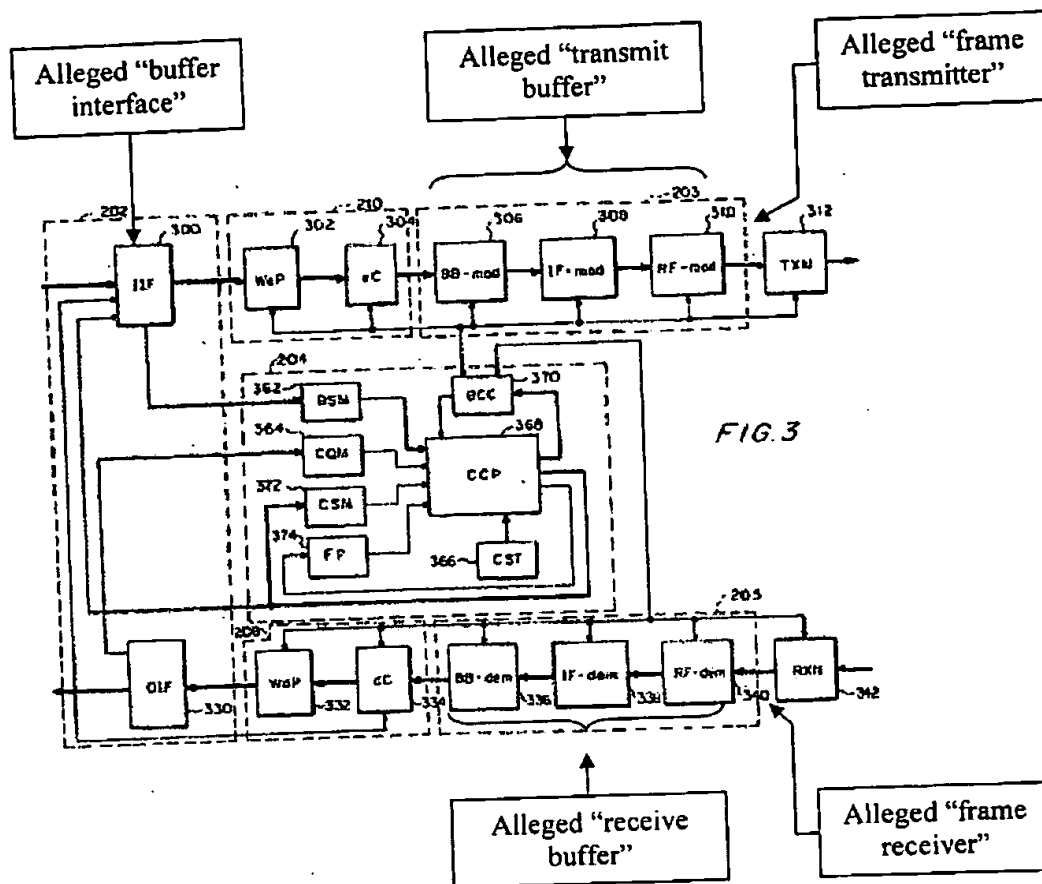
As set forth more fully below, Applicants respectfully traverse the § 102 rejection of the claims because every element of the amended claimed invention is not identically shown in *Hioe*, and/or arranged as they are required in independent claims 1, 2 and 16.

Independent Claims 1 and 16 Patentably Define Over *Hioe*

Independent claims 1 and 16 both require:

- a buffer interface that sends frames to the host central processing unit and receives frames from the host central processing unit;
- a frame transmitter that includes a transmit buffer that receives frames from the buffer interface and sends frames to the network;
- a frame receiver that includes a receive buffer that receives frames from the network and sends frames to the buffer interface . .

In the Office Action, the Examiner points to certain components illustrated in FIGs. 2 and 3 of *Hioe* that allegedly meet these elements. For convenience, FIG. 3 of *Hioe* is reproduced below, with the Office Action's allegations juxtaposed thereon.



With regard to the "buffer interface" limitation, both independent claims require that it "sends frames to the host central processing unit and receives frames from the host central processing unit." The Office Action alleges that this limitation is met by IIF 300 shown in FIG. 3. However, it is clear that IIF 300 only has one output line, which is shown going to a transmitter block starting with packet processing section 210. However, the Office Action further alleges that the claimed host central processing unit is met by *Hioe's* transmission-side terminal 101, not section 210. Accordingly, IIF 300 cannot and does not "send[] frames to the host central processing unit" (i.e. terminal 101) as required by independent claims 1 and 16.

The Office Action also alleges that *Hioe's* "modulation section" 203 meets the frame transmitter limitations of claims 1 and 16. Further, the Office Action alleges that elements 306-

310 of modulation section 203 meet the transmit buffer limitations of claims 1 and 16.

Applicants respectfully submit that these allegations are clearly incorrect. *Hioe* clearly teaches, at col. 6 line 57 to col. 7 line 9, that:

The data from the input interface 300 is transmitted to a wireless-packeting block (WeP) 302 from the input interface 300 at a predetermined timing and incorporated into a packet for radio transmission. Coding for radio transmission, error control coding, and encryption if necessary are applied to the packeted data by an encoding block (eC) 304. Then, a digital signal is converted into an analog signal by a baseband modulation block (BB-mod) 306 and an analog waveform is generated. The generated analog signal is modulated into an intermediate frequency band by an intermediate frequency modulation block (IF-mod) 308 and at the same time, the frequency components other than the occupied narrow frequency band are suppressed. An intermediate frequency signal is upconverted to a radio frequency by a radio frequency modulation block (RF-mod) 310 where the signal power is amplified up to the transmission level and the frequency components other than the occupied wide frequency band are suppressed. The amplified signal is radiated from a transmission antenna (TXN) 312.

Clearly, *Hioe*'s elements 306-310 do not buffer frames. Rather, they receive data packets at a predetermined timing via digital signals and convert the digital signals to analog waveforms. In fact, elements 306-310 all produce analog waveforms and thus cannot store or buffer frames at all. *Hioe*'s alleged "frame transmitter" thus does not include a transmit buffer as required by claims 1 and 16.

Similarly, the Office Action also alleges that *Hioe*'s "demodulation section" 206 meets the frame receiver limitations of claims 1 and 16. Further, the Office Action alleges that elements 336-340 of demodulation section 205 meet the receive buffer limitations of claims 1 and 16. For similar reasons as set forth above in connection with the frame transmitter, applicants respectfully submit that the Office Action's allegations are clearly incorrect. Elements 336-340 all work on analog waveforms and thus cannot store or buffer frames at all.

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Hioe's alleged "frame receiver" thus does not include a receive buffer as required by claims 1 and 16.

As clearly shown above, therefore, *Hioe* does not meet at least these common limitations of claims 1 and 16:

- a buffer interface that sends frames to the host central processing unit and receives frames from the host central processing unit;
- a frame transmitter that includes a transmit buffer that receives frames from the buffer interface and sends frames to the network;
- a frame receiver that includes a receive buffer that receives frames from the network and sends frames to the buffer interface . .

For at least these reasons, Applicants submit that claims 1 and 16 patentably define over *Hioe* and the § 102 rejection of these claims, as well as claims 3-15 that depend from claim 1, and claims 17-23 that depend from 16, should be withdrawn.

Independent Claim 1 Further Patentably Defines Over *Hioe*

In addition to the missing subject matter that is common with claim 16 as set forth above, claim 1 requires an encryption / decryption block that "sends and receives frames between the transmit buffer and the receive buffer."

This subject matter is not taught or suggested by *Hioe*. Rather, the Office Action alleges that elements 304 and 334 together comprise the claimed encryption/decryption block. However, even if these two elements can comprise a single block, neither element alone or in combination "sends and receives frames between the transmit buffer and the receive buffer." Rather, encoding block 304 receives data from IIF 300 and sends data to the modulation block 306. Meanwhile, decoding block 334 receives data from demodulation block 336 and sends data to

OIF 330. There is no single element in *Hioe* that both sends and receives frames between both a transmit buffer and a receive buffer at all, much less encoding block 304 or decoding block 334, alone or in combination together. At best, the combined blocks 304 and 334 receive data from an alleged receive buffer and send data to an alleged transmit buffer. Even if combined as alleged in the Office Action, they do not both send and receive data between both an alleged transmit buffer and an alleged receive buffer as is required by claim 1. Accordingly, independent claim 1 further patentably defines over *Hioe* for at least this additional reason.

Independent Claim 16 Further Patentably Defines Over *Hioe*

In addition to the missing subject matter in common with claim 1 as set forth above, claim 16 requires a timer block that "controls timing for frames that are sent from and received by the system, the timer block thereby controlling interframe spacing and timing."

The Office Action correctly admits that this subject matter is not expressly taught by *Hioe*. Instead, the Office Action alleges that this missing subject matter is inherent from *Hioe*.

Applicants respectfully disagree. To serve as an anticipation when the reference is silent about the asserted inherent characteristic, there must be some showing that "the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." Continental Can Co. v. Monsanto Co., 948 F.2d 1264, 1268 (Fed. Cir. 1991); see also Trintec Indus. v. Top-USA Corp., ___ F.3d ___ (Fed. Cir. 2002) ("Inherency does not embrace probabilities or possibilities.")

In support of its inherency position, the Office Action points to cols. 9 and 10 of *Hioe* which describe techniques for adjusting packet length on the basis of line conditions. There is no

suggestion of controlling interframe spacing and timing from these passages whatsoever, much less a timer block as required by independent claim 16.

It is submitted that one skilled in the art would recognize that controlling packet length does not necessarily require controlling interframe spacing and timing. Accordingly, it is believed that the Office Action's inherency basis for the rejection of claim 16 is improper, and that claim 16 further patentably defines over *Hioe* for this additional reason.

Amended Independent Claim 2 Patentably Defines Over *Hioe*

Amended independent Claim 2 requires

processing, using operations implemented by hardware in an integrated circuit, the incoming frame for time-critical functions, the time critical functions including:
 sending an outgoing frame corresponding to the incoming frame to the host;
 formulating time-critical responses;
 accumulating statistics; and
 updating a media access control state.

Although consistent with its original form, claim 2 has been amended to even further clarify and distinguish the inventive method. In particular, the claim requires that the method include time-critical functions that are implemented as hardware operations in an integrated circuit. This is to distinguish the claimed method from, for example, functions that are implemented as software executing on a processor.

In contrast to the explicit requirements of amended claim 2, the Office Action relies on passages of *Hioe* that describe operations of a "channel control processor" (CCP) 368. Without addressing each of the allegations in the Office Action regarding *Hioe*'s CCP operations, assuming arguendo that they correspond to the functions recited in claim 2, they are clearly

implemented as software operations on a processor. For example, at lines 50-56 of col. 7, *Hioe* teaches that "channel control processor 368 determines transmission conditions based on the communication demand stored in the input buffer status memory 362 and the information on the line quality stored in the line quality memory 364 in accordance with the channel setting rules stored in the channel setting rule memory 366." The Office Action specifically relies on this teaching for the claimed function of "updating a media access control state."

Because *Hioe* does not teach, and in fact teaches away from, the invention required in amended independent claim 2, the § 102 rejection of this claim, along with claims 24-31 that depend therefrom, should be withdrawn.

Dependent Claims 3-8, 10-15, and 17-23 Further Patentably Define Over *Hioe*

Claims 3-8 and 10-15 depend from independent claim 1 and claims 17-23 depend from claim 16. These claims patentably define over *Hioe* at least by virtue of their dependence on claims 1 and 16. Each of these claims recite additional subject matter that further patentably distinguish them from *Hioe*.

The Office Action alleges that the claimed frame transmitter is allegedly met by modulation section 203, and the claimed frame receiver is allegedly met by demodulation section 205. Meanwhile, each of these claims further limit the structure of the claimed frame transmitter and receiver, which limitations even further distinguish them from *Hioe*'s modulation section 203 and demodulation section 205.

Claims 3, 10 and 17 require that the frame transmitter includes a transmit state machine, and the frame receiver includes a receive state machine. The Office Action alleges that these elements are met by transmit antenna 312 and reception antenna 342, respectively. However, it

is submitted that one skilled in the art would not consider an antenna to be equivalent to a state machine. Moreover, neither antenna is part of *Hioe's* alleged frame transmitter or receiver, and thus do not meet the express limitations of claims 3, 10 and 17.

Claims 4, 11 and 18 require that the frame receiver includes a filtering block for filtering frames. The Office Action apparently alleges that *Hioe's* band-pass filters 1038 correspond to the claimed filtering block. However, these filters clearly operate to limit an analog signal to a particular pass-band, and as such do not know or care about frames.

Claims 5, 12 and 19 require that the frame receiver includes a retry operations block for determining when retransmission of a frame is needed. The Office Action points to col. 9, lines 41-62, and col. 10, lines 23-30, which refer to operations of control section 360 and wireless packeting block 302, not the alleged frame receiver (demodulation block 205). Accordingly, even if, arguendo, these operations correspond to the claimed retry operations block, they are not included in the alleged frame receiver, and thus do not meet the explicit requirements of the claims.

Claims 6, 13 and 20 require that the frame transmitter includes an acknowledgement block for determining when a frame was anticipated and sending an acknowledgement message corresponding thereto. The Office Action points to col. 5, lines 63-66, which refer to operations of control section 204a, not the alleged frame transmitter (modulation block 203). Accordingly, even if, arguendo, these operations correspond to the claimed acknowledgement block, they are not included in the alleged frame transmitter, and thus do not meet the explicit requirements of the claims. Moreover, col. 5, lines 63-66 merely suggest sending a test signal for supervising line quality, and teaches nothing about sending an acknowledgement message corresponding to reception of an anticipated frame.

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Claims 7, 14 and 21 require that the frame transmitter includes a special frames generation block. The Office Action merely points to FIGs. 9A and 9B, which depict the modulation block 203 in detail. Neither of these figures includes any element called a "special frames generation block." In fact, this would be unusual, because FIGs. 9A and 9B merely form modulated analog waveforms based on received data and do not generate frames at all. Accordingly, there is no evidence that *Hioe's* modulation block 203 includes a special frames generation block, much less one that meets the explicit requirements of the claims.

Claims 8, 15 and 22 depend from claims 7, 14 and 21, respectively, and further require that the special frames generation block include means for generating beacons. The Office Action apparently takes the position that this subject matter is inherent in *Hioe's* CDMA or TDMA system. However, there is no teaching of a special frames generation block in modulation section 203 at all, much less one that includes a means for generating beacons. Accordingly, there is no evidence that *Hioe's* modulation block 203 includes a special frames generation block, much less one that includes means for generating beacons as explicitly required by the claims.

For at least these additional reasons, claims 3-8, 10-15 and 17-23 patentably define over *Hioe*, and the § 102 rejection of these claims should be withdrawn.

Newly Added Claims

Claims 32-37 have been added to more clearly point out the patentable features of the invention as originally described in the specification. These claims depend from independent claims 1, 2 and 16 and should be allowable at least by virtue of their dependence from allowable subject matter.

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Conclusion

Applicants have amended the claims and/or described the differences between them and the cited reference. All objections and rejections having been addressed, Applicants believe the claims are now in condition for allowance, and notice thereof is earnestly solicited.

If any further questions should arise, the Examiner is respectfully invited to contact the attorney at the number set forth below.

Respectfully submitted,


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